

CLAIMS

What is claimed is:

1. A high developing voltage supply apparatus, comprising:
 - a high developing voltage supply supplying a high developing voltage to developer roller shafts of fixed color development rollers to transfer toner to an organic photo conductor (OPC) drum from the fixed color development rollers;
 - a high developing voltage driver selectively outputting a high voltage driving signal based on an image to be printed to selectively apply the high developing voltage to one of the fixed color development rollers;
 - developer power switches switching the high developing voltage supplied to the fixed color development rollers in response to the high voltage driving signal output from the high voltage driver; and
 - a DC voltage supply supplying a predetermined DC voltage to the other fixed color development rollers excluding the one of the fixed color development rollers supplied with the high developing voltage.
2. The high developing voltage supply apparatus as claimed in claim 1, wherein the high developing voltage comprises a DC voltage and an AC voltage superimposed.
3. The high developing voltage supply apparatus as claimed in claim 2, wherein the DC voltage supply comprises:
 - a DC voltage supply providing the predetermined DC voltage; and
 - resistors connected between the DC voltage supply and the fixed color development rollers to supply the predetermined DC voltage output from the DC voltage supply to the other fixed color development rollers for developing operations of the image to be printed, as the high developing voltage applied is applied to the one of fixed color development rollers for the developing operations.
4. The high developing voltage supply apparatus as claimed in claim 3, wherein the DC voltage supply provides a negative voltage when the toner is an electrically negative toner and provides a positive voltage when the toner is an electrically positive toner.
5. A high developing voltage supply apparatus, comprising:

a high developing voltage supply supplying a high developing voltage to developing roll shafts of developers in order for toner to move from a plurality of fixed color development rollers to an OPC drum;

a high developing voltage driver for selectively outputting a high voltage driving signal based on an image to be printed in order for the high developing voltage to be selectively applied to the fixed color development rollers;

developer power switches switching the high developing voltage to the fixed color development rollers in response to the high voltage driving signal; and

a voltage divider dividing and supplying the high developing voltage to the fixed color development rollers remaining except for the fixed color development roller supplied with the high developing voltage.

6. The high developing voltage supply apparatus as claimed in claim 5, wherein the high developing voltage comprises a DC voltage and an AC voltage superimposed.

7. The high developing voltage supply apparatus as claimed in claim 6, wherein the voltage divider provides a negative voltage when the toner is an electrically negative toner and provides a positive voltage when the toner is an electrically positive toner.

8. The high developing voltage supply apparatus as claimed in claim 7, wherein the voltage divider divides the high developing voltage with the resistors connected between the one of the fixed color development rollers selected for developing operations and the other fixed color development rollers not selected for the developing operations.

9. The high developing voltage supply apparatus as claimed in claim 8, wherein values of the resistors are determined based on an impedance formed by a capacitance due to a gap between the OPC drum and each of the fixed color development rollers and capacitance due to the OPC drum.

10. A high developing voltage supply apparatus, comprising:
 solenoid power switches;
 a high developing voltage driver selectively
 outputting a solenoid driving signal to close one of the solenoid power switches to electrically close a corresponding mechanical contact,
 applying a high developing voltage to one of color development rollers corresponding to the mechanical contact closed and based on an image to be printed; and

a high developing voltage supply supplying the high developing voltage to developing roll shafts of the other color development rollers to stabilize potentials of the developing roll shafts.

11. The high developing voltage supply apparatus as claimed in claim 10, wherein when an electrically negative toner is used, a DC voltage of negative level is supplied from the high developing voltage supply, and, when a positive toner is used, a DC voltage of positive level is supplied from the high developing voltage supply.

12. The high developing voltage supply apparatus as claimed in claim 10, wherein the high developing voltage supply supplies to developing roll shafts corresponding to the color development rollers, a high developing voltage formed of an AC voltage and a DC voltage superimposed to transfer toner from the development rollers to an OPC drum.

13. The high developing voltage supply apparatus as claimed in claim 10, wherein the developer solenoid power switches close or open mechanical contacts corresponding to the solenoid driving signal output from the high developing voltage driver to transmit the high developing voltage output from the high developing voltage supply to the developing roll shafts of the other color development rollers.

14. The high developing voltage supply apparatus as claimed in claim 10, further comprising:

a DC voltage supply comprising

a first DC voltage supply supplying a predetermined DC voltage, and resistors R connected between the first DC voltage supply and the respective color development rollers, where the DC voltage supply supplies the predetermined DC voltage to the other development rollers not selected for developing operations when the high developing voltage provided from the high developing voltage supply is applied to the one of the developers selected for the developing operations.

15. The high developing voltage supply apparatus as claimed in claim 12, wherein a developing vector between a surface of the OPC drum and the other development rollers decreases, so that the toner developed on the OPC drum by the one of the development rollers does not move towards the other development roller.

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16. A high developing voltage supply apparatus, comprising:
solenoid power switches;
a high developing voltage driver selectively
outputting a solenoid driving signal to close one of the solenoid power
switches to electrically close a corresponding mechanical contact,
applying a high developing voltage to one of color development rollers
corresponding to the mechanical contact closed and Kased on an image to be printed; and
a voltage supply supplying a self-biased voltage to the other color development
rollers using the high developing voltage formed with a DC voltage V_{DC} and an AC voltage
 V_{AC} superimposed.
17. The high developing voltage supply apparatus as claimed in claim 16, wherein
the voltage supply provides a negative voltage when the toner is an electrically negative
toner and provides a positive voltage when the toner is an electrically positive toner.
18. The high developing voltage supply apparatus as claimed in claim 17, wherein
the voltage supply divides the high developing voltage with resistors connected between
the one of the color development rollers for developing operations and the other color
development rollers not for the developing operations.